

# Notice of Allowability

Application No.

10/751,060

Examiner

Ling-Siu Choi

Applicant(s)

MANIMARAN ET AL.

Art Unit

1713

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/02/2005.
2. ☒ The allowed claim(s) is/are 1-3, 5 and 7-23.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 04/15/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**DETAILED ACTION**

1. This Office Action is in response to the Amendment filed May 2, 2005. Claims 4 and 6 were canceled and claims 22-23 have been added. Claims 1-3, 5, and 7-23 are now pending.

***Allowable Subject Matter***

2. Claims 1-3, 5, and 7-23 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Hoechst Aktien-Gesellschaft (GB 1 531 799) and Barda et al. (US 4,352,909).

In a process to brominate a styrenic polymer in an <b>organic solvent</b> in the presence of an antimony trihalide catalyst such that a reaction mass containing brominated styrenic polymer in an organic phase is formed	
the improvement:	
A	mixing <b>hydrochloric acid or hydrobromic acid</b> or both with the reaction mass at least once
B	extracting antimony catalyst residues from a reaction mass as an <b>acidic aqueous phase</b>
C	recovering antimony catalyst residues from at least a portion of the acidic aqueous phase by extracting antimony catalyst residues from at least a portion of the acidic aqueous phase into an organic solvent to thereby form a solution of antimony trihalide catalyst residues in the organic solvent

(summary of claim 1)

Hoechst Aktien-Gesellschaft discloses that a quantity of aqueous hydrochloric acid is added to the used catalyst solution of antimony (III) halide in chlorofluoroethane to become two separable phases, wherein the amount of acid or water added to the used catalyst for obtaining two separable phases depends on the antimony content of the catalyst and on the concentration of the acid used (page 1, lines 27-43; page 2, lines 20-50; claim 1). However, Hoechst Aktien-Gesellschaft do not teach or fairly suggest the claimed improvement by adapting steps to extract antimony trihalide catalyst residues from the reaction mass as an acidic aqueous phase, followed by extracting at least some antimony trihalide catalyst residues from at least a portion of the acidic aqueous phase into an organic solvent and then recovering the antimony catalyst residues from the organic solvent.

Barda et al. disclose a process to produce a essentially trihalogenated polystyrene, comprising the steps of (a) dissolving polystyrene in a chlorinated hydrocarbon solvent, (b) reacting the resulting solution of the polystyrene with a stoichiometric excess of bromine chloride in the presence of antimony trichloride to produce a brominated polystyrene (claim 1). However, Barda et al. do not teach or fairly suggest a method to prepare a brominated styrenic polymer comprising steps to extract antimony trihalide catalyst residues from the reaction mass as an acidic aqueous phase, followed by extracting at least some antimony trihalide catalyst residues from at least a portion of the acidic aqueous phase into an organic solvent and then recovering the antimony catalyst residues from the organic solvent.

### ***Conclusion***

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

*LSC*

**LING-SUI CHOI  
PRIMARY EXAMINER**

June 15, 2005